



Linda S. Adams
Secretary for
Environmental Protection

Eight Significant Violations Observed At E-Waste Recyclers and How to Prevent or Correct Them



Maureen F. Gorsen,
Director
Department of Toxic
Substances Control

The Department of Toxic Substances Control (DTSC) has identified eight electronic waste management violations that occur at many e-waste recycling operations around the state. These violations may result in formal enforcement action and substantial fines and penalties. This document was prepared to help e-waste recyclers prevent or correct these violations and avoid fines and penalties.

1. **Unauthorized Breakage of CRT Glass**
2. **Failure to Prevent or Contain Spillage of Broken Glass or UWED Residuals**
3. **Failure to Provide and Document Employee Training on Proper Handling of CRTs**
4. **Failure to Provide Proper Personal Protective Equipment (PPE) and Failure to Ensure Employees Wear the PPE Stipulated in their Training Plan**
5. **Inability to Demonstrate that "Designated" Items are Not Universal Wastes**
6. **Failure to Properly Classify Treatment Residuals and/or Meet Requirements to Exclude a Waste as a "Recyclable Material"**
7. **Failure to Verify Compliance with Local and State Air Pollution Control Laws and Regulations**
8. **Failure to Submit Annual Report(s)**

1. Unauthorized Breakage of CRT Glass

California Code of Regulations, title 22, §66273.83 requires handlers who dismantle CRTs to manage the CRT materials in a manner that **prevents release** and **breakage**. Furthermore, recyclers authorized to conduct yoke removal can only do so provided the recycler does not **intentionally** break glass [California Code of Regulations, title 22, §66273.83(c)(1)]. DTSC frequently encounters facilities conducting **unauthorized treatment** by intentionally breaking glass while authorized only to conduct yoke removal.

Why do facilities commit this violation? For some TV models, such as RCA-brand TVs, it may be difficult or impossible to remove yokes without breaking the CRT electron gun glass. Such models should be **accumulated separately** and sent to an e-waste recycler(s) who has authorization to break CRT glass. If you are confused about how to dismantle a certain TV without breaking glass, consider referring to brand-specific repair manuals for suggested and model-appropriate methods.

Intentional breakage of CRT glass requires the highest level of authorization that DTSC offers under the Universal Waste Alternative Management Standards (which are the title 22, chapter 23 regulations). To obtain authorization to break CRT glass, a recycler must notify DTSC 30 days prior to breaking CRTs. The authorization also requires submission of detailed and time-consuming Financial Assurance and Financial Responsibility (FA/FR) documents that must demonstrate **significant funds** available to close the facility when the business ceases operation. Recyclers who cannot afford FA/FR and intend to only handle, dismantle, and remove yokes should simply avoid breaking glass. For more discussion on this matter, go to <http://www.dtsc.ca.gov/HazardousWaste/EWaste/upload/WTP1.pdf>.

Remember that having authorization to break glass does not entitle the recycler to do so by means of careless management. Accidental breakage of glass is addressed directly below.

2. Failure to Prevent or Contain Spillage of Broken Glass or UWED Residuals

Due to the sheer volume of material handled and the nature of recycling operations, there is likely to be some **accidental** breakage of CRT glass from time to time, and spillage of universal waste electronic device (UWED) residuals during or after dismantling activities. If you promptly clean up, contain, and repackage the residuals, you may avoid a citation for failure to contain residuals.

UWEDs

California Code of Regulations, title 22, §66273.33(d)(3)(F)(2) requires that recyclers conduct their dismantling activities over or in a **containment device** (e.g., a tray, a box, a workbench, a table, or an enclosed machine) sufficient in size and construction to contain any materials that may be released under reasonably foreseeable conditions.

If a release occurs while conducting dismantling activities, recyclers must follow the requirements of California Code of Regulations, title 22, §66273.37 by determining whether any of the spilled material (such as ink cartridges, capacitors, etc.) is **hazardous waste**, and, if so, manage it as such. If the spilled material consists only of residues of leaking, broken, or damaged universal waste, it should be repackaged as appropriate and **NOT** thrown in the trash.

Recyclers have expressed confusion about what DTSC means by cleaning up residuals "immediately." DTSC has observed several recyclers who hire full-time "**sweepers**" to sweep the floor in areas where flying screws, bits of plastic and metal, and other dismantling debris inevitably falls. DTSC has not cited these facilities since the releases were promptly and continuously cleaned up. If your operation cannot afford a full-time sweeper, consider what extra precautions you can take to prevent spillage of materials while dismantling, and instruct staff to verify that their work areas **are free of spillage** before they leave for breaks and lunch hours.

CRTs

California Code of Regulations, title 22, §66273.83(c)(7) and §66273.83(d)(9) require that both CRT yoke removers and glass recyclers ensure that all treatment is conducted over or in a containment device (e.g., a tray, box or enclosed machine) sufficient in size and construction to contain any CRT glass that may be released. CRT material, including yokes and glass, should be **repackaged** per California Code of Regulations, title 22, §66273.87(c) and **NOT** thrown in the trash.

Unnecessary glass breakage and releases can occur when depositing CRTs into Gaylord boxes. Your employees might think it is okay to throw CRTs in boxes since the boxes are sturdy and may be lined. However, glass can squeeze out the cracks and corners of even lined boxes and collect around pallets. This glass is eventually ground down to smaller particles and **dust**, can become airborne, and can potentially expose employees and others to lead.

It is relatively easy to avoid glass breakage as long as employees handle items with **care**. Employees should make every effort to carefully place, not drop, CRTs into Gaylord boxes. If this becomes unreasonable due to the weight of the CRTs, consider a **lift apparatus** to place the containment box at a more convenient height.

3. Failure to Provide and Document Employee Training on Proper Handling of CRTs

Recyclers are not required to have written training records for handling UWEDs; California Code of Regulations, title 22, §66273.33(d)(3)(F)(3) only requires that handlers be **thoroughly familiar** with the associated hazards and have access to the proper procedures and personal protective equipment (PPE) necessary to safely conduct treatment. However, facilities must provide initial and annual training, and a record of the employee training, to all employees who handle CRTs.

Here are some of the reasons a facility may not provide initial or annual training to staff on proper management of CRTs:

- 1 Their staff already "know" what to do, so there's no reason to go over it again
- 2 The recycling facility is operated entirely by family members, so training and training records seem unnecessary
- 3 Managers are unsure of what topics to cover in their training, or how to describe what their staff will be responsible for understanding.

Such excuses will not persuade the DTSC inspector from citing a training violation. Remember, California Code of Regulations, title 22, §66273.86 states that a CRT material handler shall inform all employees who handle or have responsibility for managing CRT material of **proper handling** and **emergency procedures** appropriate for the waste handled at the facility. **Initial** training must cover the **hazards** associated with handling CRT materials (i.e., leaded glass); the general UW requirements found in title 22, chapter 23; and the proper procedures for responding to and **managing releases** of CRT glass. An **annual review** of the initial training is also required.

Some training topics will carry over into worker safety issues. DTSC may refer gross cases of negligence to the California Division of Occupational Safety and Health (Cal/OSHA) for follow-up.

Finally, remember that the operator must maintain **records** of employee training received for at least three years from the date the employee last worked at the facility. This will not only help you meet regulatory requirements, it will help you hold your employees **accountable** for what they learn. Remember, by having effectively trained employees, you can help avoid other violations as well.

4. Failure to Provide Proper Personal Protective Equipment (PPE) and Failure to Ensure Employees Wear the PPE Stipulated in their Training Plan

California Code of Regulations, title 22, §66273.33(d)(3)(F)(3); §66273.83(c)(10) and (c)(12); and §66273.83(d)(12) and (d)(14) require a recycler to ensure that employees who perform treatment or recycling are thoroughly familiar with the associated hazards of their work and **have access** to the proper procedures and PPE necessary to safely conduct treatment. These sections also require that the facility be operated in compliance with all applicable worker health and safety laws and regulations (referenced in California Code of Regulations, title 8).

The regulations do not specify what **type** of, or **how much**, PPE employees should wear for various activities; this is left to the facility's discretion and to the requirements of Cal/OSHA. However, DTSC will check that the PPE is **available** to employees who need and/or want it and that employees are wearing PPE that is **consistent** with what the facility operation plan or employee training plan stipulates. For example, if CRT handlers are required by their training plan to wear a special type of safety shoes and fail to wear them, then the facility will be cited for violating California Code of Regulations, title 22, §§66273.33(d)(3)(F)(3), 66273.83(c)(10), and/or 66273.83(d)(12), as appropriate.

5. Inability to Demonstrate that "Designated" Items are Not Universal Wastes

Some electronic devices accepted by e-waste recyclers but not destined for reclamation are not required to be managed as e-waste if the recycler can make the California Code of Regulations, title 22, §66261.2(g) demonstration that there is a known market or disposition for the devices. This demonstration must be based upon appropriate documentation. DTSC shall determine what constitutes appropriate documentation on a case-by-case basis. Devices for which the demonstration can be made should not be labeled as UWEDs.

DTSC inspectors will consider the electronic devices that a handler accepts to be subject to DTSC's universal waste regulations unless the handler can make the demonstration required by California Code of Regulations, title 22, §66261.2(g). Demonstrating the existence of a known market should be fairly straightforward for

usable, "as is," or refurbished electronic devices. Some recyclers may wish to hold some devices for use other than resale or management as a waste, such as for use as "museum" or "exhibit" pieces. DTSC will determine on a case-by-case basis whether a recycler's museum or exhibit constitutes a "known disposition" for their e-waste. Examples of the inquiries that an inspector may make in evaluating a claim that these devices are not wastes include:

- Is there evidence of a timely determination, with certainty, as to which pieces in a pile of devices are to be managed as museum pieces – and timely segregation of those devices from the waste devices in the pile?
- Is there evidence that the museum pieces are managed to preserve their value as true museum pieces after they have been segregated from the wastes? (e.g., careless storage or handling weighs against classifying the devices as valuable museum pieces.)

A recycler who wishes to hold an electronic device for museum or exhibit purposes, or for any use other than resale or management as a waste, may refer questions to DTSC at the address shown in item 8 below.

6. Failure to Properly Classify Treatment Residuals and/or Meet Requirements to Exclude a Waste as a "Recyclable Material"

Residuals produced from dismantling of CRT devices are fairly straightforward: **plastic** and different types of **glass** are the usual components. Treatment residuals from UWEDs are more **complicated** and **varied**. DTSC provides detailed guidance on how to classify UWED residuals in a guidance document titled "UWEDs and UWED Dismantling" available at http://www.dtsc.ca.gov/HazardousWaste/EWaste/upload/E-Waste_Q-A.pdf

California Code of Regulations, title 22, §66273.33(d)(3)(F)(5) requires a recycler who conducts treatment activities to ensure that all materials produced as a result of the treatment processes (dismantling or shredding) be properly **classified and managed**. In almost every case, a recycler will produce residuals that will fall into one of the four following categories:

1. UW (such as a fluorescent UW lamp removed from a fax machine)
2. Scrap Metal (such as a printed circuit board removed from a CPU)
3. Non-Hazardous waste (such as the plastic frames of many devices)
4. Hazardous waste (such as toner cartridge ink that meets the toxicity characteristic)

Hazardous waste residuals that are or will be recycled using methods specified in Health and Safety Code §25143.2 may be excluded from classification as a waste if managed in accordance with Health and Safety Code §25143.9. UWED shredder **baghouse dust** is a hazardous waste that may be managed as an **excluded recyclable material** (ERM) when used in an industrial process as a substitute for

commercial feedstock. Subdivision (f)(2) of §25143.2 requires a facility that claims that a waste is an excluded recyclable material to **demonstrate** to DTSC that there is a known market or disposition for the material and that the material has or will be managed pursuant to §25143.9.

Since UWED shredder baghouse dust can be used as a substitute material in many different processes, "proof of recycling" demonstrations are usually evaluated on a case-by-case basis.

Examples of questions the inspector might ask are:

- What is the composition of the normal feedstock material?
- What percentage of the metal in the ERM would substitute for the normal feedstock?
- Are there any toxic element/compounds in the ERM that are not present in the normal feed?

Failure to demonstrate to the DTSC inspector that the baghouse shredder dust (or any other waste claimed to be an ERM) meets the requirements of the above cited sections would result in a violation, and ineligibility to claim that item is not a waste.

7. Failure to Verify Compliance with Local and State Air Pollution Control Laws and Regulations

California Code of Regulations, title 22, §66273.33(d)(3)(F)(6)(g) requires that treatment of UWEDs be conducted in compliance with all applicable local and state air pollution control laws and regulations. California Code of Regulations, title 22, §66273.83(c)(11) and (d)(13) similarly require CRT handlers to ensure that the facility is operated in compliance with all applicable local and state air pollution control laws and regulations. However, many operators fail to check with their local air pollution control district or air quality management district to see if they need an air permit for their activity. Many operators state that they do not know who to contact. Facilities can access the Air Resource Board's (ARB) Local Air District Directory at <http://www.arb.ca.gov/capcoa/roster.htm> to obtain the appropriate contact. That contact can advise the facility of any state laws and regulations as well.

Be advised that almost all processors, and many that conduct yoke removal and shred UWEDs to scrap-metal sized particles [as described in California Code of Regulations, title 22, §66273.33(d)(3)(C)] will require some sort of local permit, depending on the jurisdiction's laws and regulations. The local air district will usually request a description of your treatment activity and a diagram of the emission control system flow-through rates, and may do a site visit to perform their own analysis. The permit decision process may take several weeks; if the local air district determines that a permit is not needed, it may issue a letter or statement explaining that your facility and operation are exempt from needing a permit.

If the local air district does not issue you such a letter or statement, DTSC recommends that you request one for your records. If the local air district still does not provide you with a letter or statement that a permit is not required, DTSC recommends that you make a note of your contacts with the air district. The note should include the date of all contacts and each person contacted; the operation discussed with the air district; and the reason why no permit is required. File this information where it can be readily located to show to the DTSC inspector. Having such a letter or statement in your files will help you demonstrate to the inspector that you are in compliance with the applicable air pollution control laws and regulations.

8. Failure to Submit Annual Report(s)

If you have submitted your Notification of Intent to Handle E-Waste (as every collector and recycler must do) you will need to submit an **annual report** to DTSC by February 1st following each calendar year that you operate [California Code of Regulations, title 22, §§66273.33(d)(2)(B) and 66273.82(b)]. If you do not handle any UWEDs or CRTs in a particular year, for whatever reason, but intend to conduct future operations pursuant to the authorization provided by your Notification of Intent, you must still submit an annual report indicating that no UWEDs or CRTs were handled that year.

If you have notified for several different sites, you will need to file an Annual Report for **each site**. This requirement is frequently overlooked by entities hosting **one-time collection events**. If you hold a one-time event, you need to submit your annual report for the calendar year in which you held the event by the following February 1st, but not for years after, as long as you do not hold another event at the same location.

Operators may neglect to file annual reports because they are unsure of what they should report. The reporting requirements are relatively simple and should take less than an hour to meet. Information requested includes type and quantity of devices handled, a list of facilities to which devices were shipped, etc.

You are strongly encouraged to use the online Notification and Reporting System at <http://www.dtsc.ca.gov/database/UWED/index.cfm> to meet the reporting requirement. If you have not already notified online, but submitted a **hard-copy** DTSC 1382 or 1388 form instead, you will need to enter your notification information into the system in order to use the system for your annual reports. The online process includes **maintenance pages** if you need to edit or update your information in the future. Keep in mind that you will have to set up an online **account**, including a username and password, to use the online system.

Submission of written (**hard copy**) annual reports are discouraged, but still accepted. They can be sent by certified mail, return receipt requested to: Department of Toxic Substances Control, Hazardous Waste Management Program, Regulatory Program Development Division, P.O. Box 806, Sacramento, CA 95812-0806, with "**Attention: UWED/CRT Materials Handling Activities**" prominently displayed on the front of the envelope.

~~*~*~*~*

Disclaimer:

DTSC has prepared this document to assist electronic waste recyclers in understanding the regulations and requirements governing the proper management of electronic wastes. This guidance is not intended to be a comprehensive reference and is not meant to supersede any applicable regulations or statute. For complete information on how to manage electronic wastes, please refer to California Code of Regulations, title 22, chapter 23.

Comments or Questions:

If you have questions regarding the material presented in this document, contact DTSC's Electronic Waste Team Leader, Rita Hypnarowski, at (916) 255-3699 or rhypnaro@dtsc.ca.gov.